

What is claimed is:

1. An electro-luminescence display device, comprising:

gate lines;

data lines crossing the gate lines;

pixel cells at crossings of the gate lines and the data lines;

a gate driver that sequentially applies a gate signal to the gate lines during one horizontal period; and

a plurality of data driving circuits that apply voltage signals to the pixel cells along a gate line during a first time of the horizontal period and applying current signals to the pixel cells during a second time after the first time of the horizontal period.
2. The electro-luminescence display device according to claim 1, wherein the first time is shorter than the second time.
3. The electro-luminescence display device according to claim 1, wherein each of the plurality of data driving circuits includes:

a voltage driver that applies voltage signals to the data lines corresponding to image data; and

a current driver that allows the current signals corresponding to the image data to flow from the pixel cells.
4. The electro-luminescence display device according to claim 3, further comprising a gamma voltage driver that applies a plurality of gamma voltage levels to the voltage driver so as to generate the voltage signal.
5. The electro-luminescence display device according to claim 3, wherein the voltage driver includes:

a plurality of voltage driving blocks corresponding to each data line that generate a voltage signal corresponding to the image data; and

a plurality of first switches between each of the voltage driving blocks and each of the data lines, wherein the first switches are turned on by a control signal.

6. The electro-luminescence display device according to claim 5, wherein said current driver includes:

a plurality of current driving blocks corresponding to each data line that drive the current signal in response to the image data, said current driving blocks having i blocks; and

a plurality of second switches between each of the current driving blocks and each of the data lines and wherein the second switches are turned on by a control signal.

7. The electro-luminescence display device according to claim 6, wherein the control signal remains at a first level during the first time and remaining at second level during the second time.

8. The electro-luminescence display device according to claim 3, wherein the voltage signal is charged onto a storage capacitor in the pixel cell.

9. A method of driving an electro-luminescence display device, comprising:

applying a gate signal to pixel cells along a specific horizontal line during a horizontal period;

applying a voltage value corresponding to image data to the pixel cells during a first time to pre-charge the pixel cells; and

applying a current value corresponding to the image data to the pixel cells during a second time after the first time to display an image corresponding to the image data.

10. The method according to claim 9, wherein applying a voltage value and applying a current value are repeated every horizontal period.

11. The method according to claim 9, wherein the first time is less than the second time.

12. The method according to claim 11, wherein applying a voltage value includes charging a storage capacitor.

13. A method of driving an electro-luminescence display device, comprising:

applying a gate signal from a gate driver during each horizontal period to select pixel cells along specific horizontal line;

applying a voltage value corresponding to image data from a voltage driver to the pixel cells during a first time of the horizontal period; and

applying a current value corresponding to the image data to the pixel cells during a second time after the first time.

14. The method according to claim 13, wherein applying the voltage value to the pixel cells includes selecting one of a plurality of gamma voltage values according to the image data to apply to the pixel cells.

15. The method according to claim 13, wherein the first time is less than the second time.

16. The method according to claim 14, wherein applying a voltage value includes charging a storage capacitor.

17. An electro-luminescence display device, comprising:

gate lines;

data lines crossing the gate lines;

pixel cells at crossings of the gate lines and the data lines;

a gate driver that sequentially applies a gate signal to the gate lines during one horizontal period; and

a plurality of data driving circuits having a voltage driver that applies voltage signals to the data lines corresponding to image data and a current driver that allows the current signals corresponding to the image data to flow from the pixel cells.

18. The electro-luminescence display device of claim 17, wherein the data driving circuits apply voltage signals to the pixel cells along a gate line during a first time of the horizontal period and apply current signals to the pixel cells during a second time after the first time of the horizontal period.

19. The electro-luminescence display device according to claim 18, wherein the first time is shorter than the second time.

20. The electro-luminescence display device according to claim 17, further comprising a gamma voltage driver that applies a plurality of gamma voltage levels to the voltage driver so as to generate the voltage signal.

21. The electro-luminescence display device according to claim 17, wherein the voltage driver includes:

a plurality of voltage driving blocks corresponding to each data line that generate a voltage signal corresponding to the image data; and

a plurality of first switches between each of the voltage driving blocks and each of the data lines, wherein the first switches are turned on by a control signal.

22. The electro-luminescence display device according to claim 21, wherein said current driver includes:

a plurality of current driving blocks corresponding to each data line that drive the current signal in response to the image data, said current driving blocks having i blocks; and

a plurality of second switches between each of the current driving blocks and each of the data lines and wherein the second switches are turned on by a control signal.